

Title (en)

VERTICAL FIELD-EFFECT TRANSISTOR AND METHOD FOR FORMING SAME

Title (de)

VERTIKALER FELDEFFEKTTRANSISTOR UND VERFAHREN ZUM AUSBILDEN DESSELBEN

Title (fr)

TRANSISTOR À EFFET DE CHAMP VERTICAL ET SON PROCÉDÉ DE FORMATION

Publication

**EP 4055632 A1 20220914 (DE)**

Application

**EP 20780665 A 20200924**

Priority

- DE 102019217081 A 20191106
- EP 2020076738 W 20200924

Abstract (en)

[origin: WO2021089230A1] The invention relates to a vertical field-effect transistor (200, 300, 400, 500, 600) having: a drift region (204); a semiconductor fin (230) on or above the drift region (204); a connection region (212) on or above the semiconductor fin (230); and a gate electrode (220), which is formed next to at least one side wall of the semiconductor fin (230), the semiconductor fin (230) having a smaller lateral extent in a first portion (208), which is arranged laterally next to the gate electrode (220), than in a second portion (206), which contacts the drift region (204), and/or than in a third portion (210), which contacts the connection region (212).

IPC 8 full level

**H01L 29/10** (2006.01); **H01L 21/336** (2006.01); **H01L 29/08** (2006.01); **H01L 29/78** (2006.01)

CPC (source: EP US)

**H01L 29/0619** (2013.01 - EP); **H01L 29/063** (2013.01 - US); **H01L 29/0657** (2013.01 - EP); **H01L 29/0847** (2013.01 - EP);  
**H01L 29/1608** (2013.01 - EP US); **H01L 29/2003** (2013.01 - EP US); **H01L 29/66068** (2013.01 - EP US); **H01L 29/66522** (2013.01 - US);  
**H01L 29/66666** (2013.01 - EP US); **H01L 29/7828** (2013.01 - EP US)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**DE 102019217081 A1 20210506**; CN 114667609 A 20220624; EP 4055632 A1 20220914; JP 2023162328 A 20231108;  
JP 2023500880 A 20230111; JP 7522832 B2 20240725; US 2022367713 A1 20221117; WO 2021089230 A1 20210514

DOCDB simple family (application)

**DE 102019217081 A 20191106**; CN 202080079619 A 20200924; EP 2020076738 W 20200924; EP 20780665 A 20200924;  
JP 2022525733 A 20200924; JP 2023137898 A 20230828; US 202017767282 A 20200924